

## ABSTRACT

An active acoustic noise reduction system which comprises a single input transducer and an output actuator that are physically located next to each other in the same location. In one embodiment, the input transducer and the output actuator are a hybrid represented by a single element. The active noise reduction system is located as close as possible to the noise source and functions to generate an antinoise cancellation sound wave with minimum delay and opposite phase with respect to the noise source. The noise reduction system also comprises a non linearity correction circuit, a delayed cancellation circuit and variable gain amplifier. The system provides user control of the quiet zones generated by the system by varying the gain of the variable gain amplifier. The system provides a user with the ability In one embodiment, an echo canceler is utilized to remove echoes fed back from the output actuator. In another embodiment, an input decoder is used instead of an echo canceler to remove feedback picked up from the output actuator.